

B1  
head 28, the mixed product that is dropping as described above is additionally mixed again along the shaft 8 via the rotating speed differences, rotating directions, gap widths and diameters of the shearing heads that are predominant here. In this area, the liquid can also be supplied very well, and it is mixed in an especially effective manner.

On page 1 and 3 and 4 of the substitute specification, please revise the paragraph as follows:

B2  
In order to increase the effectiveness of mixing with the spirals, it has proven to be especially favorable if at least one of the spirals provided is interrupted in the circumferential direction and is comprised of mixing blades that are connected after each other in the circumferential direction. Through this type of interruption of the mixing spiral, the mixed product is mixed in an especially intensive manner, since it is moved in especially small volumes by the blades, and comes to rest again. Moreover, each mixing blade can be equipped with a different conveying angle both in the axial and in the radial direction, whereby an additionally improved mixing effect can be obtained.

On page 4, first paragraph of the substitute specification, revise the paragraph as follows:

B3  
A further improvement of the intermixing is achieved when at least individual mixing blades have, on their ends that are trailing in the rotating direction, a lifting edge that is bent upwards, through which a brief impulse directed upwards is imparted to a mixed good portion lifted by the mixing blades, before this mixed product portion begins to drop again due to the force of gravity, whereby it is then picked up again by a trailing mixing blade and further intermixed accordingly.

On page 4, second paragraph of the substitute specification, revise the paragraph as follows:

B4  
In a special embodiment form of this type of mixing spiral comprised of mixing blades, two mixing blades at a time are arranged essentially above each other and are connected to each other by an essentially vertically running blade carrier that is set in the rotational direction. With this blade carrier, on which if necessary, even more than two blades arranged above each other can be mounted, the mixed product can be accelerated or slowed down in the radial direction.

On page 6, first paragraph of the substitute specification, revise the paragraph as follows:

B5  
FIGURE 5 is a cross-sectional view of a mixing and reducing machine across lines 5-5 of FIGURE 4.

On page 6, fifth paragraph of the substitute specification revise the paragraph as follows:

B6  
Furthermore, in the example depicted here, an additional supply lance 6 is depicted, by which liquid that is yet to be mixed in during the mixing operation can be possibly added to the mixed product that is filled through the supply opening 4.

On page 6, seventh paragraph of the substitute specification revise the paragraph as follows:

B7  
On this shaft 8, two mixing spirals that convey upwards are mounted above each other. With them, the mixed product is revolved in the vertical mixer as indicated by the dot-dash lines 10: on the circumferential area of the housing 1, the mixed product is conveyed upwards through the two mixing spirals and drops down again in the vicinity of the shaft 8, in particular, also because of the force of gravity.

On pages 6 and 7 of the substitute specification, revise the paragraph as follows:

B8  
The mixing spirals are, as can be recognized in the view in Figure 2, not continuous, but instead they are interrupted in the circumferential direction and are comprised of several mixing blades 11 to 13 that are connected one after the other in the circumferential direction. Figure 3 shows schematically how the individual mixing blades are arranged. In Figure 2, a zero-line is marked for this purpose, starting from which an angle  $\alpha$  is measured. The first mixing blade 11.1 is arranged at an angle of  $\alpha = 0^\circ$ , after which the mixing blade 12.1 is arranged at an angle of  $\alpha = 120^\circ$ , which is in turn followed by the mixing blade 13.1 at an angle of  $\alpha = 240^\circ$ . A small portion of the mixed product is grasped by the first mixing blade and correspondingly conveyed axially and radially and again released. Each subsequent mixing blade picks up parts of this conveyed portion and conveys and mixes it further.

On page 7, second paragraph of the substitute specification, revise the paragraph as follows:

B9  
Each of these mixing blades has on its end that is trailing in the rotational direction, a lifting edge 18 that is angled upwards. Through it, a portion of the mixed product, which was lifted by the mixing blade, is given a slight impulse upwards, before it drops again slightly because of the force of gravity, and is picked up by the following mixing blade and conducted again further upwards.

On pages 7 and 8 of the substitute specification, revise the paragraph as follows:

B10  
It is now essential to the invention that the mixing blade 13.2 shown is not directly followed by another mixing blade (in the example shown here, 14.1), but instead that here a transition zone 19 extends in the axial direction, which is free of a mixing spiral in the example shown here. In other words, in this area, the mixed product that was conveyed until now is again brought to rest, before it is picked up by the following other mixing blades 14.1, 15.1 and 16.1 and/or then 14.2, 15.2 and 16.2, which are positioned at circumferential angles of  $\alpha = 60^\circ$ ,  $180^\circ$ , or  $300^\circ$ .

On page 8 of the substitute specification, revise the paragraph as follows:

B11  
It should also be pointed out here that the blade carriers 17 mentioned are set opposite the rotation direction, in order to support a mixed product transport in the radial direction, which favorably affects the mixing. In the example depicted here, these blade carriers 17 are mounted in the process via carrier arms 20 onto the shaft 8, which has on the side lying in front in the rotating direction (according to the arrow 21 in Figure 2), a front surface 22 that is increasingly chamfered

B11  
radially to the outside. Also, in this way, a transport of the mixed product radially to the outside is supported.

On page 8, third paragraph of the substitute specification, revise the paragraph as follows:

B12  
Furthermore, it is to be pointed out, that the lowest mixing blade 11.1 is provided with a stripper 23 that strips over the bottom 3 of the housing 1 and lifts up the mixed product that is settling there.

On page 8, last paragraph of the substitute specification, revise the paragraph as follows:

B13  
All in all, with the mixing device described, the mixed good can be conducted axially and radially in smaller partial portions, whereby a subsequent mixing blade always picks up and conveys further parts of the mixed product portion that is conveyed from the mixing blade that has previously passed. This stirring of very small portions of the mixed product achieves a fast and intensive intermixing.

On page 9, second paragraph of the substitute specification, revise the paragraph as follows:

B14  
For mixing jobs in which the shearing of the mixed product, which can be achieved through the mixing elements described thus far, is no longer sufficient to obtain a homogeneous end product, additional shearing elements are shown in the Figures 4 and 5, with which a corresponding vertical mixer according to the invention can be additionally equipped.

On page 9, third paragraph of the substitute specification, revise the paragraph as follows:

B15  
In the process, catchment elements 24 are mounted on the wall of the cylinder-shaped housing 1 of the mixing container. The blades 25 that assist this catchment element 24 and that are also conducted close along the cylindrical container wall like the aforementioned mixing blades, form an additional shearing gap with the catchment element 24 on their radially outside end, which reinforces the mixing effect for the vertical mixer. In the process, one or more blades 25 can be driven in mesh over several rings 24 arranged axially above each other. Of course, instead of rings that go completely around the circumference, only segments of them can be mounted. As can be recognized in Figure 5 in the lower half, the catchment elements can also be constructed as toothed rings 26, which especially further increases the shearing action.

On page 10, first paragraph of the substitute specification, revise the paragraph as follows:

B16  
On the whole, the present invention shows an effective device for ensuring a mixed product preparation operating in the vertical direction, in which the maximum homogeneity requirements can be met while simultaneously keeping the batch times short. The different shearing effects over the zones of the mixer are especially advantageous in the process when liquids are added as mixing components, since in the area of the liquid additions, the increased shearing effect leads to a quick distribution of these components. Since this increased shearing effect only occurs locally, however,